

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-8. (Canceled)

9. (Currently Amended) ~~The polymer composition of claim 1~~ A polymer composition, comprising: a photodefinable polymer including a sacrificial polymer and a photoinitiator, wherein the photoinitiator is selected from, bis(2,4,6-trimethylbenzoyl)-phenylphosphineoxide and 2-benzyl-2-dimethylamino-1-(4-morpholinophenyl)-butanone-1.

10-12. (Canceled)

13. (Currently Amended) ~~The method of claim 11~~ A method for fabricating a structure, comprising:

disposing a photodefinable polymer composition onto a surface,
wherein the photodefinable polymer includes a sacrificial polymer and a photoinitiator
selected from a negative tone photoinitiator and a positive tone photoinitiator;

disposing a gray scale photomask onto the photodefinable polymer,
wherein the gray scale photomask encodes an optical density profile defining a three-
dimensional structure to be formed from the photodefinable polymer;

exposing the photodefinable polymer through the gray scale
photomask to optical energy; and

removing portions of the photodefinable polymer to form the three-dimensional structure of cross-linked photodefinable polymer, wherein the removing portions comprises ~~includes~~ removing exposed portions of the photodefinable polymer composition to form the three-dimensional structure.

14. (Currently Amended) The method of claim ~~14~~13, further comprising:
 disposing an overcoat layer onto the three-dimensional structure; and
 decomposing the photodefinable polymer composition, thermally, to
 form a three-dimensional air-region.

15. (Original) The method of claim 14, wherein decomposing
 includes:
 maintaining a constant rate of decomposition as a function of time.

16. (Original) The method of claim 14, wherein decomposing
 includes:
 maintaining a constant rate of mass loss of the photodefinable polymer.

17. (Original) The method of claim 14, wherein decomposing
 includes:
 heating the structure according to the thermal decomposition profile
 expression

$$T = \frac{E_a}{R} \left[\ln \frac{A(l - rt)^n}{r} \right]^{-1}$$

where R is the universal gas constant, t is time, n is the overall order of decomposition reaction, r is the desired polymer decomposition rate, A is the Arrhenius pre-exponential factor, and E_a is the activation energy of the decomposition reaction.

18-19. (Canceled)

20. (Original) A structure, comprising the three-dimensional air-region formed using the method of claim 14.

21. (Original) A structure, comprising the three-dimensional air-region formed using the method of claim 15.

22. (Original) A structure, comprising the three-dimensional air-region formed using the method of claim 17.

23-27. (Canceled)